

Docket No. 99B065-2

REMARKS

Claims 1-36 are pending in the present application. Claim 1 has been amended to moot the 35 U.S.C. § 112, second paragraph. New Claim 36 is added. Claims 1-36 are pending for consideration upon entry of the present Amendment. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims is respectfully requested in view of the above amendment and the following remarks.

Claim Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1 and 2 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in relevant art that the inventors, at the time the applications was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

Applicants recite a method of making a material comprising a known functionality i.e., an ester, by reacting materials having known functional groups i.e., an olefin or an ether, using a catalyst comprising an alcohol represented by the functional group ROH. As Examiner admits, 22 examples are presented, which exemplify Applicants' presently claimed invention with various classes of claimed compounds.

Additionally, MPEP §2164.04 states:

"In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided by the claimed invention [. . .] A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason

Docket No. 99B065-2

to doubt the objective truth of the statements contained therein which must be relied on for enabling support . . . [I]t is incumbent upon the Patent Office, whenever a rejection on this basis (35 U.S.C. §112, first paragraph) is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement [...] [T]he minimal requirement is for the examiner to give reasons for the uncertainty of the enablement. This standard is applicable even when there is no evidence in the record of operability without undue experimentation beyond the disclosed embodiments."

Underlining added, brackets denote omitted material, italics in original.

The Examiner acknowledged that Applicants have provided 22 examples to support enablement. The Examiner has provided no objective evidence or scientific basis to support the putative assertion that one of ordinary skill in the art could not practice the invention without undue experimentation. The standard of uncertainty regarding enablement, as described in MPEP §2164.04, has not been met.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claim 1 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants submit that the amendment to Claim 1 moots this rejection. Applicants respectfully request reconsideration and withdrawal of this rejection.

It is well settled that where the invention resides in the combination of a broad class of known chemical compounds with a novel class of compounds, the disclosure need not include an exhaustive exemplification of all the types of compounds within the class of known compounds in order to support claims in which the known class is defined broadly. *In re Kamal et al.* (CCPA) 1968) 398 F.2d 867,

Docket No. 99B065-2

158 USPQ 320; *Ex Parte Maxey et al.* (POBA 1972) 177 USPQ 468. Accordingly, in light of the 22 examples in the instant specification, Applicants respectfully submit that Claims 1 and 2 reasonably convey to one skilled in the art Applicants' presently claimed invention.

Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-23 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over United States Patent No. 4,311,851 to Jung (hereinafter Jung), in view of United States Patent No. 4,894,188 to Takahashi et al. (hereinafter Takahashi). Claims 24-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Jung. Applicants respectfully traverse these rejections.

Applicants respectfully submit that the reasons for patentability of Claims 1-35 provided in the previous response are sufficient to establish patentability over Jung and Takahashi, individually or in combination. Applicants provide additional basis to establish that Jung and Takahashi, individually or in combination, fail to teach or suggest all of the claim elements of Claims 1-35 for the detailed reasons given below.

Applicants claimed subject matter is directed to methods of making esters by the carbonylation of olefins. The combination of the catalyst of Takahashi with the process of Jung will lead to methods of preparing carboxylic acids, not Applicants' claimed esters. Takahashi clearly requires the presence of water with HF (See Takahashi, Claim 1, the Abstract and column 1, lines 27-42.). If the Takahashi catalyst is used in with Jung to convert an olefin to an ester, then the presence of water (required by the Takahashi catalyst) will lead to the formation of an acid, not an ester. Jung expressly teaches the presence of water with an olefin, carbon monoxide and BF_3 forms an acid, not an ester (Jung at column 1, lines 32-34) and that the presence of water destroys BF_3 (Jung at column 1, lines 47-51 and column

Docket No. 99B065-2

3, lines 8-11). The combination of the catalyst of Jung and Takahashi is inoperative to form esters from olefins. One of ordinary skill in the art would not be motivated to combine Jung and Takahashi to form esters since the resulting product from the combination of Jung and Takahashi would be an acid.

It has long been established that catalysts are generally considered unpredictable merely from the chemical nature of the catalyst. *Corona Co. v. Dovan* (USSC 1928) 276 US 358, 369. Catalytic effects are not ordinarily predictable with certainty. *In re Doumani et al.* (CCPA 1960) 281 F.2d 215, 126 USPQ 408. Further, the effect of the modification of one prior art catalytic process in a manner employed in another prior art process which employs a different catalyst was held unpredictable. *Ex parte Berger et al.*, (POBA 1952) 108 USPQ 236. To find obviousness, "there must be some reason for the combination other than the hind sight gleaned from the invention itself." *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985). Stated in another way, "[I]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). Since Jung discloses that the presence of water leads to acids and the Takahashi catalyst system involves HF and water, then one could not predict that the combination of Jung and Takahashi would give an ester instead of an acid. There is no motivation to combine Jung and Takahashi in light of the Jung avoiding water and Takahashi requiring water.

Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection.

New Claim 36 is patentable over the cited Jung and Takahashi, individually or in combination, for the following reasons. Applicants recite a method of making and ester, comprising contacting an olefin or ether with carbon monoxide and an acid composition comprising $\text{BF}_3 \cdot \text{ROH}$, wherein R represents an organic radical comprising carbon and optionally hydrogen, and wherein the molar ratio $\text{ROH}:\text{BF}_3$ is from about 2:1 to about 4:1.

Jung is directed to a process wherein an olefin is carbonylated with carbon

Docket No. 99B065-2

monoxide to form carboxylic acid esters in the presence of a catalyst complex of one mole of BF_3 and one mole of alcohol (see Abstract). Jung does not disclose an acid composition comprising $\text{BF}_3 \cdot \text{ROH}$ wherein the molar ratio $\text{ROH}:\text{BF}_3$ is from about 2:1 to about 4:1. As Examiner concedes, the catalyst is prepared using ratios of from 0.75 to 2 moles of boron trifluoride per alcohol (see Page 5, Paper 10). Jung does not disclose all the elements recited by Applicants.

Takahashi is directed to producing fatty acids or their derivatives by reacting an olefin with carbon monoxide and water or reacting an alcohol or an ether and carbon monoxide in the presence of hydrogen fluoride catalyst (See Abstract). Takahashi does not disclose an acid composition comprising $\text{BF}_3 \cdot \text{ROH}$ wherein the molar ratio $\text{ROH}:\text{BF}_3$ is from about 2:1 to about 4:1. Accordingly, Takahashi fails to remedy the deficiencies in Jung.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Neither Jung nor Takahashi disclose an acid composition comprising $\text{BF}_3 \cdot \text{ROH}$ wherein the molar ratio $\text{ROH}:\text{BF}_3$ is from about 2:1 to about 4:1. Accordingly all elements of Applicants' presently claimed invention are not disclosed in the references cited. Since all the claim limitations are not disclosed in the cited references, a *prima facie* case of obviousness cannot be made. Therefore, Jung and Takahashi, either alone or in combination, do not render independent Claim 1, or the claims that depend therefrom, obvious.

While Examiner concedes the molar ratio of $\text{ROH}:\text{BF}_3$ is from 1.3:1 to 1:2,

Docket No. 99B065-2

Examiner alleges that even though the claim ranges of the prior art do not overlap, they are "so close that one skilled in the art would have expected to have the similar reaction condition in the absence of an unexpected result" (Page 7, Paper 10). Applicants respectfully disagree.

It has long been established that catalysts are generally considered unpredictable merely from the chemical nature of the catalyst. *Corona Co. v. Dovan* (USSC 1928) 276 US 358, 369. Catalytic effects are not ordinarily predictable with certainty. *In re Doumani et al.* (CCPA 1960) 281 F.2d 215, 126 USPQ 408. Further, the effect of the modification of one prior art catalytic process in a manner employed in another prior art process which employs a different catalyst was held unpredictable. *Ex parte Berger et al.*, (POBA 1952) 108 USPQ 236. To find obviousness, "there must be some reason for the combination other than the hind sight gleaned from the invention itself." *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985). Stated in another way, "[I]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Furthermore, Jung specifically states "in contrast to the 1:1 molar ratio catalyst, it [BF₃·2CH₃OH] is non-selective to the desired product and of relatively low activity. Accordingly, a substantial amount of such complex is undesirable." (Column 4, Lines 37-48). Jung therefore confirms that one skilled in the art would NOT have expected similar reaction conditions. In fact, Jung actually teaches away from Applicants' presently claimed invention.

CONCLUSION

Applicants submit that the claims are in condition for allowance. Reconsideration and allowance is respectfully requested.

Docket No. 99B065-2

If there are any additional charges with respect to this Amendment, or otherwise, please charge them to Deposit Account No. 05-1712 maintained by Assignee.

Respectfully submitted,

June 12, 2003
Date

Louis N. Moreno
Louis N. Moreno
Attorney for the Applicant
Registration No. 44,953

ExxonMobil Chemical Company
Law Technology
P. O. Box 2149
Baytown, Texas 77522-2149
Telephone: (281) 834-5675
Facsimile: (281) 834-2495